## ASSIGNMENT 4

Textbook Assignment: "Navy Aircrew Common Ejection Seat (NACES)," chapter 5, pages 5-1 through 5-38.

- 4-1. What configuration is used in the NACES system to meet the exact requirements of the crew station designer?
  - 1. Reversible
  - 2. Flexible
  - 3. Standard
  - 4. State-of-the-art
- 4-2. What does the acronym NACES mean?
  - 1. Navy Aircraft Ejection Seat
  - 2. Navy Aircrew Common Ejection Seat
  - 3. Naval Aircrew Escape System
  - 4. Naval Automatic Control Escape System
- 4-3. What type ejection seat is used in the F/A-18C aircraft?
  - 1. SJU-17(V) 1/A
  - 2. SJU-17(V) 2/A
  - 3. SJU-17(V) 3/A
  - 4. SJU-17(V) 4/A
- 4-4. The NACES may be used in either the F/A-18C/D, F-14A or A-6E aircraft?
  - 1. True
  - 2. False

- 4-5. Who is responsible for removing and installing the ejection control handle safety pin prior to and after flight?
  - 1. Plane captain only
  - 2. Aircrew only
  - Plane captain prior to and aircrew after
  - 4. Aircrew prior to and plane captain after
- 4-6. The SJU-17(V)1/A ejection seat provides escape capabilities within which of the following parameters?
  - 1. All altitudes and airspeeds
  - 2. A maximum of 600 knots speed and 50,000 feet altitude
  - 3. Zero altitude and zero airspeed
  - 4. Both 2 and 3 above
- 4-7. What is the primary purpose of the barostatic release unit?
  - 1. To act as a backup in the event of electronic sequencer failure
  - To release the occupant from the seat
  - To release the personal parachute at a determined altitude
  - 4. To provide automatic operation of the emergency restraint release

- 4-8. After seat ejection, the seat is stabilized and the forward speed is retarded by what component(s)?
  - 1. Personal parachute
  - 2. Drogue parachute
  - 3. Bridle system
  - 4. Both 2 and 3 above
- 4-9. What component automatically controls drogue deployment, seat/man separation, and parachute deployment after ejection?
  - 1. Barostatic release unit
  - 2. Time release mechanism
  - 3. Droque/bridle release system
  - 4. Multimode electronic sequencer
- 4-10. The NACES consists of what total number of main assemblies?
  - 1. Six
  - 2. Five
  - 3. Three
  - 4. Four
- 4-11. What is the primary purpose of the catapult assembly?
  - 1. To jettison the seat from the aircraft
  - 2. To provide initial power for seat ejection
  - 3. To secure the seat to the aircraft structure
  - 4. Both 2 and 3 above
- 4-12. The seat bucket assembly consists of the underseat rocket motor, lateral thrust motor, leg restraint snubbers, two pitot assemblies, shoulder harness control lever, and pin puller.
  - 1. True
  - 2. False

- 4-13. When the ejection seat is installed in the aircraft, what component locks it to the catapult?
  - 1. Upper right main beam
  - 2. Upper left main beam
  - 3. Top latch plunger
  - 4. Barostatic release unit
- 4-14. What barrels make up the catapult ejection gun?
  - 1. Inner, outer only
  - 2. Inner, intermediate only
  - 3. Intermediate, outer only
  - 4. Inner, intermediate, outer
- 4-15. What crossbeam takes the full thrust of the catapult during ejection?
  - 1. Top crossbeam
  - 2. Center crossbeam
  - 3. Bottom crossbeam
- 4-16. What services do the seat bucket slippers provide?
  - 1. Attachment points for the seatbucket to the mainbeam
  - 2. Damping out lateral movement
  - Smooth movement of the seat bucket
- 4-17. What total number of slippers are attached to the guide rails of the mainbeam assembly?
  - 1. Five
  - 2. Six
  - 3. Three
  - 4. Four
- 4-18. What handle is located on the left side of the seat bucket?
  - 1. Safe/arm control
  - 2. Seat height adjustment
  - 3. Shoulder harness control
  - 4. Manual override

- 4-19. What component on the NACES protects the occupant in the event of rapid forward deceleration?
  - 1. Static lanyard
  - 2. Spring loaded withdrawal plunger
  - 3. Shoulder harness reel
  - 4. Shoulder harness strap quadrant
- 4-20. Which of the following is a characteristic of the PRDM?
  - 1. Has a cylindrical body
  - 2. Has a gas operated secondary cartridge
  - 3. Is a sealed unit
  - 4. Each of the above
- 4-21. The PRDM primary cartridge is fired by what means?
  - 1. Mechanically
  - 2. Ballistically
  - 3. Electrically
  - 4. Gas
- 4-22. The PRDM can be initiated by which of the following means?
  - 1. Electronic sequencer
  - 2. Manual override system
  - 3. Restraint release unit
  - 4. Each of the above
- 4-23. The parachute withdrawal line is attached to the PDRM by what means?
  - 1. By scissor mechanism
  - 2. By a bolt and lock nut
  - 3. By a sliding stirrup
  - 4. By a spring-loaded quick release pin

- 4-24. The electronic sequencer is mounted on the NACES at what point?
  - 1. Across the mainbeam assembly behind the seat bucket
  - 2. Across the mainbeam assembly above the main parachute
  - 3. Across the mainbeam assembly below the main parachute
  - 4. Across the mainbeam assembly's lower aft end
- 4-25. Upon activation, the electronic sequencer determines the mode of ejection and supplies power to the start switches?
  - 1. True
  - 2. False
  - 4-26. Which of the following is a function of the barostatic release unit impulse cartridge?
    - 1. Provides the necessary gas for the restraint release assembly
    - 2. Provides the necessary gas pressure to retract the capsule peg
    - 3. Provides the necessary gas to prevent mechanical initiation
  - 4-27. What component of the barostat assembly prevents the delay mechanism from operating at altitudes in excess of barostat ratings?
    - 1. Quick release pin
    - 2. Bellows device unit
    - 3. Peg engagement mechanism
      - 4. Diaphragm assembly

- 4-28. What action or component supplies the power source to fire the drogue deployment catapult cartridge?
  - 1. Retraction of the capsule peg
  - 2. Gas pressure from the primary initiators
  - 3. The delay mechanism firing pin
  - 4. The electrical inputs from the electronic sequencer
- 4-29. What is the primary function of the drogue deployment catapult?
  - 1. To stabilize the ejection seat
  - 2. To rapidly deploy the drogue and bridle assembly
  - 3. To prevent parachute entanglement
  - 4. To ensure a rapid escape from the ejection seat
- 4-30. Which of the following is a characteristic of the drogue deployment catapult assembly?
  - 1. Contains a two-piece telescope piston
  - 2. Contains an enlarged upper end
  - Is fitted with a drogue and canister
  - 4. Each of the above
- 4-31. The drogue deployment catapult is mounted in what location on the ejection seat?
  - 1. Aft RH aide of the seat structure
  - 2. Aft LH side of the upper cross
  - 3. Outboard of the LH lower cross beam
  - 4. Outboard of the RH main beam
- 4-32. What size drogue chute is used in the NACES?
  - 1. 1.45 mm
  - 2. 2.10 mm
  - 3. 2.50 mm
  - 4. 8.25 mm

- 4-33. During the ejection sequence, what component(s) supplies the gas pressure to operate the barostatic release unit delay mechanism?
  - 1. Primary initiators
  - 2. Multipurpose initiators
  - 3. Start switch assemblies
  - 4. Electronic sequencer
- 4-34. Which of the following components houses the start switches?
  - 1. Multipurpose initiator
  - 2. Static lanyard assembly
  - 3. Electronic sequencer
- 4-35. During ejection, the start switches provides what action?
  - 1. Battery power
  - 2. Initiation set-up
  - Start signal to the electronic sequencer
  - 4. Time-delay start time
- 4-36. What is the primary purpose of the pitot assemblies?
  - 1. To supply pressure to the start switches for ejection
  - To supply dynamic pressure inputs to the electronic sequencer
  - 3. To supply static base pressure to the electronic sequencer
- 4-37. Which of the following components receives gas pressure from the upper face of the RH ballistic manifold?
  - 1. Shoulder harness reel
  - Parachute deployment rocket motor
  - 3. Upper drogue bridle release
  - 4. Each of the above

- 4-38. What total number of ballistic manifolds is/are installed on the NACES seat?
  - 1. One
  - 2. Two
  - 3. Three
  - 4. Four
- 4-39. What item or action secures the pitot arms in the stowed or deployed positions?
  - 1. Release piston
  - 2. Locking plunger
  - 3. Quick release pin
  - 4. Static gas pressure
- 4-40. What total number of connectors is/are present on the upper face of the LH ballistic manifold?
  - 1. One
  - 2. Two
  - 3. Three
  - 4. Four
- 4-41. What is the primary purpose of the thermal batteries?
  - To supply power for seat operation
  - To supply backup power for sequencer operation
  - To supply initial power for sequencer operation
  - 4. To supply initial power for the seawars
- 4-42. Thermal batteries are mounted in each of the main beam assemblies?
  - 1. True
  - 2. False

- 4-43. What total number of propellant tubes make up the underseat rocket motor?
  - 1. Ten
  - 2. Thirteen
  - 3. Fifteen
  - 4. Seventeen
- 4-44. What is the purpose of the lateral thrust motor?
  - Serves the same purpose as the underseat rocket motor
  - 2. To provide additional boost to underseat rocket motor
  - 3. Permits a divergent trajectory to the ejected seat
- 4-45. When the safe/arm handle is in the safe position, the pilot sees the handle as what color(s)?
  - 1. Yellow
  - 2. Black and yellow
  - 3. White
  - 4. Red
- 4-46. What total number of connectors are on the lower face of the RH ballistic manifold assembly?
  - 1. Five
  - 2. Two
  - 3. Three
  - 4. Four
- 4-47. Forward movement of the leg restraints is prevented by what component?
  - 1. Seat bucket snubbers
  - 2. Leg restraint locks
  - 3. Leg restraint snubbers
  - 4. Leg restraint control lever

- 4-48. What component restricts the operation of the manual override handle when the seat is installed in the aircraft?
  - 1. Safety pin
  - 2. Thumb button
  - 3. Pin puller
  - 4. Safe/arm handle
- 4-49. Operation of the manual override handle simultaneously operates the safe/armed handle to the safe position?
  - 1. True
  - 2. False
- 4-50. During ejection, what component(s) provides the gas pressure to operate the pin puller?
  - 1. The right hand seat initiator only
  - 2. The left hand seat initiator only
  - 3. Both 1 and 2 above
- 4-51. Which of the following component(s) are part of the lower harness release mechanism?
  - 1. Leg restraint line locks
  - 2. Negative-g strap locks
  - 3. Lower harness locks
  - 4. Each of the above
- 4-52. The parachute container houses which of the following parachute?
  - 1. Controller drogue
  - 2. Main drogue
  - 3. Personnel and ribbon drogue
- 4-53. In the NACES, what type drogue is attached to the parachute crown bridle apex?
  - 1. 1.5m main
  - 2. 1.5m personnel
  - 3. 1.5m ribbon
  - 4. 1.5m controller

- 4-54. What force actuates the firing pin in the catapult firing mechanism?
  - 1. Ballistic gas
  - 2. Mechanical
  - 3. Electrical inputs
- 4-55. What maximum number of inches of travel is required before the piston head shears the three dowel screws in the quide bushing?
  - 1. 38
  - 2. 42
  - 3.60
  - 4. 72
- 4-56. During ejection sequence, gas pressure from what cartridge is used to operate the shoulder harness release cartridge?
  - 1. Multipurpose initiator
  - Shoulder harness impulse cartridge
  - 3. Left hand seat initiator
  - 4. Right hand seat initiator
- 4-57. Which of the following forces causes the secondary cartridge to face fire the parachute deployment rocket motor in the event of sequencer failure?
  - 1. Ballistic gas from the harness release unit cartridge
  - 2. Ballistic gas from the emergency restraint release cartridge
  - 3. Both 1 and 2 above
  - 4. Ballistic gas from the multipurpose initiator cartridge
- 4-58. After ejection has been initiated, what source supplies the electronic sequencer with electrical power?
  - 1. A single on-board thermal battery
  - 2. Two on-board thermal batteries
  - 3. Internal aircraft power
  - 4. Start switches

- 4-59. What source activates the multipurpose initiators upon ejection?
  - 1. Ballistic gas pressure from primary initiators
  - 2. Ballistic gas pressure from thermal batteries
  - Two pyrotechnic cartridges, after
     42 inches of travel
  - 4. Electronic sequencer, 120 milliseconds after activation
- 4-60. In the absence of a start switch signal, the electronic sequencer takes what action?
  - 1. It continues in the "wait" mode
  - 2. It activates automatically after approximately 200 milliseconds
  - It initiates the underseat rocket motor
  - 4. It activates the start switch
- 4-61. What is the total burn time of the underseat rocket motor?
  - 1. 200 milliseconds
  - 2. 220 milliseconds
  - 3. 250 milliseconds
  - 4. 2 seconds
- 4-62. Which of the following is/are the critical actions for an electronic sequencer?
  - Sensing the seats altitude and airspeed
  - 2. Choosing the appropriate timings from a set of available sequences
  - 3. Both 1 and 2 above
  - 4. Providing initial start-up from the thermal batteries

- 4-63. Speed and altitude are measured from the sequencer by what three types of sensors?
  - Pitot pressure, altitude, airspeed
  - Pitot pressure, altitude, base pressure,
  - Pitot pressure, base pressure, accelerometer
  - 4. Altitude, airspeed, attitude
- 4-64. What total number of shielded cables are used to transmit electrical signals to and from the electronic sequencer?
  - 1. Six
  - 2. Seven
  - 3. Eight
  - 4. Nine
- 4-65. What is the total number of operational ejection modes of the NACES?
  - 1. Five
  - 2. Seven
  - 3. Three
  - 4. Nine

IN COMPLETING ITEMS 4-66 THROUGH 4-70, SELECT FROM COLUMN B THE AIRSPEED AND ALTITUDE INFORMATION THAT APPLIES TO THE MODE OF OPERATION IN COLUMN A. ITEMS IN COLUMN B MAY BE USED MORE THAN ONCE.

A. Modes	В.	Airspeeds/ Altitudes
Mode 1	1.	Airspeed above 500 knots and altitude
Mode 2		below 8,000 feet
Mode 3	2.	Altitude above 18,000 feet
Mode 4	2	•
Mode 5	3.	Altitude between 8,000 and 18,000 feet
	4.	Airspeed below 350 knots and altitude below 8,000 feet
	Mode 1 Mode 2 Mode 3 Mode 4	Mode 1 1.  Mode 2  Mode 3 2.  Mode 4  Mode 5

- 4-71. During the ejection sequence, the PDRM fires and withdraws the parachute in its bag.
  - 1. True
  - 2. False

- 4-72. During ejection and shortly after the parachute starts to deploy, what parachute part is jettisoned to avoid entanglement and allow a clean seat/man separation?
  - 1. Parachute extractor
  - 2. Droque bridle
  - 3. Droque chute
  - 4. Stabilizer chute
- 4-73. What seat survival kit is used with the NACES?
  - 1. SKU-7/A
  - 2. SKU-8/A
  - 3. RSSK-7
  - 4. RSSK-8
- 4-74. At what time during ejection will electronic sequencer timing begin?
  - 1. When the ejection control handle is pulled
  - 2. After approximately five inches of seat upward travel
  - 3. Immediately after seat ejection
  - 4. When the start switches close
- 4-75. What NAVAIR manual should be used to order repairable/nonrepairable parts for the NACES?
  - 1. A1-F18AE-44
  - 2. 01-F18AE-4-1
  - 3. 01-13-1-36
  - 4. 13-1-36

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